

Patent Application of
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for
STEPPED STOOL FOR SENIORS AND OTHERS

Background - Field of Invention

This invention relates to articles of furniture that can and have been used as an assist to one of the activities of daily living, the simple task of a person putting on or taking off their shoes and socks. It may also apply to the putting on or taking off of any other type of footwear or medical devices attached to a person's legs or feet.

Background - Description of Prior Art

Many people as they age or have incurred some form of injury to their feet, knees or back have difficulty in putting on and taking off their shoes and socks. They may find that the height of normal chairs or the edges of their bed are usually too high or too soft to make this simple task easy and comfortable. Some people have used footrests to overcome these deficiencies. Other people who live in a multistoried house, have found that sitting on the stairs makes the task much easier. However, even using the stairs isn't a perfect solution because the stair tread they must

sit upon isn't deep enough for comfort. The present invention is directed to provide assistance in one of the most common activities of daily living - putting on and taking off one's shoes and socks. An examination of prior art reveals that the solution to making this task easy and comfortable appears to have followed three different approaches.

The first approach was the invention of footrests used in conjunction with a chair or some other seating device such as a bed. These devices, while primarily used to rest one's feet or legs, can also provide a means to position their legs and feet off the floor to make the act of putting on or taking their shoes and socks much easier for those persons with back or knee problems. There have been many footrest described in prior art and the following examples are some of the best that could have or even may have been adapted to this task.

U.S. Pat. No. 48,638 to C. S. Adams (July 11, 1865) discloses an adjustable foot rest that could be used to facilitate shoe/sock putting on and taking off process assuming that the height of the stool was comfortable. However, the device is bulky, requires something to sit upon and appears to be rather expensive to make. U. S. Pat. No. 110,240 to D.H. James (Dec. 20, 1870) shows a footrest /boot jack which is also adjustable and could be used. Again, one is faced with having to use it in conjunction with a seating device. It's design does not make it stable as it appears to be resting on a chair seat and is not a stand alone unit. U.S. Pat. No. 322,792 to J. S. Clark (July 21, 1885) is designed to be portable and also is a potentially useable device if the dimensions were correct, but it still requires a seating device to be functional.

U.S. Pat. No. 590,268 to C. A. Lee (Sept 21, 1897) also describes an adjustable footrest which could be used to help in solving the shoe/sock installation/removable process. A detailed look at the design reveals several deficiencies. First, it requires hooks to secure the elevation of the actual footrest which means that adjustment is not completely flexible. Secondly, it still requires a chair with an opening at the bottom and lastly the chair's bottom opening width and height must be such that the supporting arms would fit under it. U.S. Pat. No. 1,694,146 issued to D. S. Sattler Et Al (Dec. 4, 1928) describes a slanted footrest that could work if the dimensions of the long

surface were shortened and the angle of the rest were made slightly steeper. Still, it requires a separate seating surface as it is not a stand alone device. Another example similar to the above is U.S. Pat. No. D139,897 issued to R. Smith (Jan. 2, 1945). Here too, the dimensions would have to adjusted and a seating unit is still required. All of the above solutions of using a separate footrest can be made to work, but one would still require a chair, bed or some other seating unit to use them. All of the these solutions require some type of seating unit in which the height it is critical to making the combination of footrest and seating unit comfortable for the user.

The second approach pertains to seating units, specifically chairs, that have some type of attached footrest that can be pulled out when required. Among the best examples that could be used for putting on and removing a person's shoes and socks are: U.S. Pat. No. 155,016 to M. Eberhard (Sept. 15, 1874) and U.S. Pat. No. 1,216,172 to L. O. Schulz (Feb. 13, 1917). Both of these examples show a pull-out footrest wide enough for a person to place both feet on them. But, the height of the two rests differ, one appears to be too low and the other too high to really be effective and comfortable for the user. U. S. Pat. No. 694,538 issued to W. A. Eddy (Mar. 4, 1902) is constructed in such a manner that one's foot could be place on the single foot version of the rest and probably make it work. However, it is attached to a specific type chair and as such is not universal and the height of it is not adjustable. U.S. Pat. No. 1,249,882 to F. Arnett (Dec. 11, 1917) is for casters for a chair, but the chair illustrated has pull-out rest wide enough for one foot, but it too is too high for the task. All above except for W. A. Eddy's are chairs and as such are relatively more expensive than a footrest and are not easily portable.

The next two examples; U. S. Pat. No. 1,505,829 to H. W. Warnecke (Aug. 19, 1924) and U.S. Pat. No. 2,628,879 to M. M.. Schultz (Feb 17, 1953) are both examples where the idea of providing a support for the feet that is at a reasonable height to be used for putting on and taking off one's shoes is a part of the design. In fact, Warnecke's unit also provides a box in which to keep shoe polishing equipment. However, both of these units are essentially chairs and the design indicates that they would be rather costly. In essence, all of the prior art based on the use of a chair and a built-in footrest result in an approach that in not easily portable and costly. In fact,

a search of the market reveals that none of these designs are currently being marketed.

A third and last approach to providing a piece of furniture or a device to assist people in the task of putting on and taking off their shoes and socks is to make the footrest and seat a single unit. A search of prior art describes several solutions. The earliest is U. S. Pat. No. 430,947 to A. B. Heller (June 24, 1890) which describes a combined footrest and stool. The invention was intended for use by shoe salesman to fit customers shoes. An examination of it shows that if one were to reverse and modify the footrest, it could be used for the task. Again, there is nothing like this on the market. U.S. Pat. No. 2,666,210 to H. A. Wiley (Jan 19, 1954) shows a child's step stool which if the dimensions were modified, a combination step stool of the proper width and height could be made specifically for adults. Weight and portability might make the modified unit undesirable to seniors and others needing such a device. A design patent U.S. Pat. No. D173,804 issued to R. Goldman and R. R. Nemzer (Jan. 4, 1955) a "Child's Combination Stepladder and Stool" describes a single unit which if the dimensions were changed to adapt it for adults could work as well. It would have to be constructed of light metal to make it easily portable and its design doesn't make it an attractive piece of furniture. Lastly, it is not being marketed.

U.S. Pat. No. 3,736,023 a "Portable Footstool and Lounge Chair Combination" issued to W. L. Lyons (May 29, 1973) if made of stiff enough material could work as well. However, using it might present some difficulty as it requires folding and unfolding. Such a task most likely would discourage many people; besides it's bulky and not easily portable. Another unit U.S. Pat. No. 4,377,309 issued to H. G. Mengshoel (Mar 22, 1983) describes several seating devices one showing a person in a sitting position with a cushion underneath the stool. If the dimensions of this device were correct, it could very easily be used. However, it really is two units working together, a stool and a cushion and would require moving two separate pieces whenever one wish to use it.

The last example of a combined unit is, U.S. Pat. No. 6,145,931 "Article for use in Putting on and Removing Shoes" issued to S. Subotic (Nov. 14, 2000) describes a single seating unit - a stool

- with a pull-out footrest and a shelf support for shoes waiting to be put on or taken off. This unit has several deficiencies; first the slide-out footrest allows only one foot at a time to be placed on the footrest. The act of pulling out the sliding footrest may causes some seniors and others a problem as they may be forced to pull it out before they sit. This might make it awkward in their sitting down. The dimensions of the unit also may not be good for seniors and its weight might make it less portable than many would like. Also, its design suggests an expensive solution, which may deter seniors living on a fixed income.

Finally, a pending application, U.S.2002/0060491 A1 of A. Kneler "Chair With Attached Footrest" May 23, 2002 describes a specially designed chair with attached footrest used to facilitate one's putting on and taking off their shoes. This design also includes storage space for shoes. The drawing details on the application are not in sufficient detail to make any real good judgements about its construction and therefore its ultimate cost. Furthermore, the unit as described would result in a fairly large chair and many senior's living space may not allow them room to include such a unit in their household. Potential customers may also question the need to pay for storage, especially if they had a large number of shoes. Cost and portability of the unit make also affect a person's decision to purchase one.

A detailed examinations of the patents listed above and many others reveals that there isn't a real good solution currently on the market to make the task of putting on or taking off shoes and socks easy and comfortable for people with knee, back or leg problems. Medical supply houses have stools of adjustable height principally for use the shower and bath. Some are marketed under the name INACARE which have telescoping metal legs with a plurality of holes and internal locking pins to provide the adjustment. None of these stools have attached footrests. A plastic "Boot Bench" which has a storage compartment as part of the seat, but no footrest is currently being marketed by the STEP2 Company. It is ideal for youngsters, but its dimensions are not good for anyone with back or knee problems or aging senior's with somewhat limited motion.

Objectives and Advantages

For those people with back, leg or knee problems, the simple task of putting on or taking off their shoes and socks can be either an annoyance or a significant problem. Especially since this task is usually done everyday. And, with the recent increase in the number of knee and hip replacements being performed and the increase of back injuries caused by out-of-shape people extending themselves physically; more and more people are suffering when performing this simple task. Thus, the objectives of the present invention are to overcome the deficiencies of past solutions and provide a device that will satisfy the needs of the people affected.

The first objective of the present invention is to provide a piece of furniture that would fit in with the vast majority of people's taste in furniture design and space in their household. The design should not look as if it is only fit for a nursing home or hospital. The lines should be clean and attractive to the average person. And, even more importantly the unit must fit the application; so its dimensions, especially the height, depth and width of the seat and footrest, are quite important.

Another objective of the design is the ultimate cost of it to the consumer. Many of the people that would really need a unit like this have limited income and could not afford something other than a basic device. So, the materials to be used and the construction of the unit are critical to its success in the market place. And, the unit should also be light weight and easily portable.

The preferred embodiment of the present invention would be constructed of some type of hardwood or even plywood, preferably Baltic birch, to make it fit in more easily with ones' current furniture. However, the unit could be made of plastic or metal as long as the resulting unit is strong enough for the application and light enough to be easily portable. The unit would also be manufactured in such a manner so that it would be shipped in an unassembled condition to save shipping cost.

The seat and footrest could also be padded for additional comfort for the user. A pair of arm rests attached to the side frames may also be added to assist the user in sitting down or getting up.

Another version of the unit would provide for a seat and a footrest which could be adjusted in height to more easily accommodate people with above average height. An adjustable seat is typically more important than an adjustable footrest and a version specially addressing this aspect of the design would also be important and included.

Brief Description of the Drawings

FIG. 1 is a side view in elevation of the preferred embodiment of the invention.

FIG. 2 is a front view in elevation of the preferred embodiment of the invention.

FIG. 3 is a back view in elevation of the preferred embodiment of the invention.

FIG. 4 is a side view in elevation of an alternative embodiment of the invention allowing for the vertical adjustments of both the seat and the footrest.

FIG. 5 is a view of the front of the alternative embodiment of the invention when taken along line 5 - 5 of Fig. 4.

FIG. 6 is a view of the back of the alternative embodiment of the invention when taken along line 6 - 6 of Fig. 4.

FIG. 7 is a perspective view of a typical front brace used in the invention.

FIG. 8 is a plan view of a typical back brace used in the invention.

FIG. 9 is a plan view of the footrest adjusting support used on the adjustable embodiment of the invention.

FIG. 10 is a plan view of the seat adjusting support used on the adjustable embodiment of the invention.

FIG. 11 is a perspective view of the preferred embodiment of the invention.

FIG 12 is a perspective view of an alternative embodiment of the invention using metal telescoping legs.

Reference Numbers in the Drawings

10 Seat of stepped stool.

16 Left side adjustable frame member.

11 Footrest of stepped stool.

17 Right side adjustable frame member.

12 Left side frame member.

18 Footrest adjustable support.

13 Right side frame member.

19 Seat adjustable support.

14 Typical front brace.

20 Fasteners.

15 Typical back brace.

Description of the Drawings

Referring to the drawings, **Fig. 1** is a side view of the preferred embodiment of the stepped stool

where the seat **10** is mounted to the top horizontal portion of the left side frame member **12** and the footrest **11** is mounted to the lower horizontal portion of the left side frame member **12** and the front brace **14** and back brace **15** are attached to the side frame member **12**.

Fig. 2 is a front view of the preferred embodiment where seat **10** is mounted to the top of both the left side frame member **12** and right side frame member **13** and footrest **11** is shown attached the lower horizontal portion of both the left side member **12** and the right side member **13** and with the front brace **14** and the back brace **15** also attached to both side members **12** and **13**.

Fig. 3 is a back view of the preferred embodiment where the seat **10** and footrest **11** are mounted to the side frames **12** and **13** and the front brace **14** and back brace **15** are also mounted to the side frames **12** and **13**.

Fig. 4 is a side view of an alternate embodiment of the stepped stool that provides a means for vertical adjustment of both the seat **10** and footrest **11**. Here, the seat **10** is attached to the seat adjustable support **19** which is attached to the left side adjustable frame member **16** by fasteners **20**. The footrest **11** is attached to the footrest adjustable support **18** which in turn is attached to the left side adjustable frame member **16** by fasteners **20**.

Fig. 5 is a cross sectional view taken along line **5 - 5** of **Fig. 4**. Here it can be seen how the footrest adjustable supports **18** are attached to the footrest **11** and to both the left side adjustable frame member **16** and the right side adjustable frame member **17** with the fasteners **20**. Also shown is the how the front brace **14** is attached to the side frame members **16** and **17** so as not to interfere with the vertical adjustment of the footrest adjustable supports **18** and the footrest **11**.

Fig. 6 is a cross sectional view taken along line **6 - 6** of **Fig. 4**. Here it can be see how the seat adjustable supports **19** are attached to the seat **10** and to the left side adjustable frame member **16** and the right side adjustable frame member **17** with fasteners **20** and how the back brace **15** is positioned not to interfere with the adjustable seat supports **19** and the seat **10**.